

RANGE AND SPLITTER SYSTEM

ABSTRACT OF THE DISCLOSURE

An auxiliary gear box for a transmission is provided including a piston housing having a first and second bore. A first piston is arranged within the first bore and separates the first bore into first and second chambers. A first shift shaft extends from the first piston and is connected to a first shift fork. A second piston is arranged within the second bore separating the second bore into third and fourth chambers. A second shift shaft extends from the second piston and is connected to a second shift fork. In one example, this invention provides first, second and third actuators for selectively actuating the pistons. The first actuator is fluidly connected to the first chamber. The second actuator is fluidly connected to the second and fourth chambers, and the third actuator is fluidly connected to the third chamber. The exposed surface area of the piston in the chamber having the shift shaft is less than the exposed surface area of the piston on the chamber opposite the shift shaft. As a result, if both chambers of a bore are pressurized, the piston will move in the direction of the chamber having the shift shaft since a greater force will be generated on the piston in the chamber without the shift shaft.